

REMARKS

The Office Action dated January 14, 2009 has been received and carefully noted. The above amendments and the following remarks are being submitted as a full and complete response thereto. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1, 5, 9, 10 and 11 have been amended. Claim 4 has been cancelled and claims 12 and 13 were previously withdrawn. All other claims have been left in their original form. Because support for the amended claims is provided in the application as originally filed, the Applicants respectfully submit that no new matter is presented herein. Thus, claims 1-3 and 5-11 are currently pending in the application and are subject to further examination. To the extent that the rejection(s) remain applicable to the claims currently pending, the Applicants hereby traverse the rejections, as follows.

Rejection Under 35 U.S.C. §103

Claims 1-6 and 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wald et al. (U.S. Patent No. 7,217,471, hereinafter "Wald") in view of Mowrer et al. (U.S. Patent No. 5,942,073, hereinafter "Mowrer"). It is noted that claim 4 has been cancelled. The Applicants respectfully traverse this rejection, insofar as it applies to newly amended independent claims 1 and 9, because the alleged combination of Wald and Mowrer fails to teach each and every feature of newly amended independent claims 1 and 9. For example,

newly amended independent claims 1 and 9 recite, amongst other features, that “the membrane-electrode structure includes a diffusion layer that coats at least one of said catalyst layers and said adhesive support layer.” The Applicants respectfully submit that the alleged combination of Wald and Mowrer fails to teach or suggest at least the diffusion layer as claimed in newly amended independent claims 1 and 9.

Wald, as cited by the Examiner, does disclose a membrane electrode assembly with compression control gasket (abstract) containing a fuel transport layers 2 and 3 that are positioned near a polymer electrolyte membrane 1, as shown in FIGs. 1 and 2. The Examiner relies on Wald to teach “two catalyst layers, wherein the catalyst layers are positioned in the inner circumference side of the membrane (Figure 2; column 5 lines 53-67)” (Office Action, page 2). Although Wald does not show a catalyst material in any of the figures, catalyst layers are discussed in column 5. Further, Wald discloses a gasket material 10 that may be made of various “thermoplastic and curable materials” (column 6, lines 39-41) that is placed at the edges of the assembly, as shown in FIGs. 1 and 2.

However, FIGs. 1 and 2 of Wald clearly show that neither the anode side fuel transport layer 2 nor the cathode side fuel transport layer 3 coat the gasket material 10. In fact, as Wald explains in column 6, lines 10-12, the gasket material is “deposited in the outer edge portions of the anode and cathode faces of the PEM” after both layers 2 and 3 are formed. Then, it would be impossible for either layer 2 or 3 to “coat” the gasket material 10, as claimed in newly

amended independent claims 1 and 9. Rather, the gasket material 10 is deposited in the step shown in FIG. 1 and then the assembly is “pressed” according to the discussion in column 6 lines 52-64. As shown in FIGs. 1 and 2, the gasket material 10 contacts each of these layers only at its periphery or the “outer edge portions” (column 6, lines 10-12). In other words, the layers 2 and 3 do not coat the gasket material 10, but merely make slight contact with it. Wald simply does not teach, disclose or otherwise suggest a “diffusion layer that coats at least one of said catalyst layers and said adhesive support layer,” as claimed. Further, in Wald the patterning plates 20 and 21 form a raised-edge microstructured contact pattern 22 and 23 on the contact face of each gasket (see column 6, lines 5-9), thereby directing the gas along the contact face of each gasket. There is no such structure in the claimed diffusion layer of the present invention.

Nor does Mowrer cure the deficiencies of Wald at least with respect to the diffusion layer. The Examiner relies upon Mowrer to teach a polysiloxane adhesive (Office Action, page 3), but does not rely on Mowrer to teach a membrane electrode structure, diffusion or catalyst layers. In fact, Mower does not mention the words “membrane” or “electrode” or the phrase “diffusion layer” in the specification.

For at least the above reasons, Applicants respectfully submit that newly amended independent claims 1 and 9 are not obvious over the alleged combination of Wald and Mowrer. Further, Applicants respectfully submit, claims 2-3, 5 and 6 are not obvious over the alleged combination of Wald and Mowrer

because of their ultimate dependency on claim 1 and for the additional features they recite. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-3, 5, 6 and 9 under 35 U.S.C. §103(a) over Wald in view of Mowrer.

Claims 7 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wald et al. in view of Mowrer et al. as applied to claim 1 above, and further in view of Matlock et al. (U.S. Patent No. 6,261,711, hereinafter "Matlock"). Applicants respectfully traverse these rejections.

Both claims 7 and 8 ultimately depend from newly amended independent claim 1. As shown above, the alleged combination of Wald and Mowrer fails to teach, disclose or otherwise suggest at least the claimed diffusion layer in newly amended claim 1 "that coats at least one of said catalyst layers and said adhesive support layer," Applicants respectfully submit that Matlock does not cure the deficiencies of the alleged combination of Wald and Mowrer at least with respect to this claimed feature.

Matlock does disclose a sealing system for fuel cells (title). In FIG. 7, Matlock shows two gas diffusion layers 312 and 312' and their relation to gaskets 110 and 199. As is clearly shown in FIG. 7, neither gas diffusion layers 312 and 312' coat either of the gaskets 110 and 199. In fact, as Wald explains in column 5, lines 47-64, the gaskets 110 and 199 are added after both gas diffusion layers 312 and 312' are formed. Then, it would be impossible for either gas diffusion layers 312 and 312' to "coat" the gaskets 110 and 199, as claimed in newly amended independent claims 1. Rather, the gaskets 110 and 199 are deposited

in the step shown in FIG. 7 and then the assembly is “compressed” according to the discussion in column 5, lines 47-64 and shown in FIG. 8. As shown in FIGs. 7 and 8, the gaskets 110 and 199 contact the gas diffusion layers 312 and 312’ only at their peripheries. In other words, gas diffusion layers 312 and 312’ do not coat the gaskets 110 and 199, but merely make slight contact with them. Matlock simply does not teach, disclose or otherwise suggest a “diffusion layer that coats at least one of said catalyst layers and said adhesive support layer,” as claimed.

Further, Applicants respectfully submit, that the motivation given for using the “relative sizes of the anode and cathode catalyst layers” as allegedly taught by Mowrer in the device of Wald is without motivation or basis. Where a modification to a reference or combination of references must be made in order to reject a claim under 35 U.S.C. § 103, the burden is on the Examiner to show a proper motivation to do so. See M.P.E.P. §§ 2143, 2143.01. In order to combine this alleged teaching of Mowrer with Wald, the Examiner merely states on page 4 of the Office Action that such a combination “**would be desirable**” (emphasis added) “**if** it was determined that a larger reaction area was required on the cathode side of the membrane” (emphasis added). The Examiner does not actually assert that it is, in fact, desirable to combine these teachings or explain why it would be desirable to do so. Rather, the Examiner merely states that it **would be** desirable to do so if the properties of the combination **were** desirable. This statement is circular.

Further, it is not clear when or why “a larger reaction area [would be] required on the cathode side of the membrane” or under what conditions this would be desirable. The Examiner provides no rational reason that it would be. There is no motivation cited in either Wald or Mowrer for desiring such a result, nor is any other reference or basis given. The Examiner’s rejection is based on impermissible hindsight. The mere fact that the prior art may be modified in a manner suggested by the Examiner does not make the modification obvious unless there is a rational reason for the modification. *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007). To facilitate review this analysis should be made explicit. *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007). The Examiner gives no rational reason why or how the “relative sizes of the anode and cathode catalyst layers” as allegedly taught by Mowrer would be used in the device of Wald, much why doing so would be “desirable.”

For at least the above reasons, Applicants respectfully submit that the alleged combination of Wald, Mowrer and Matlock does not render newly amended independent claim 1 obvious. Therefore, Applicants respectfully submit, claims 7 and 8 are not obvious over the proposed combination of Wald, Mowrer and Matlock at least because of their ultimate dependency on claim 1 and for the additional features they recite. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 7 and 8 under 35 U.S.C. §103(a) over Wald in view of Mowrer and Matlock.

Claims 10 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wald et al. in view of Mowrer et al. and Ito et al. (U.S. Patent

Application Publication No. 2001/0055711). Applicants respectfully traverse these rejections, insofar as they apply to newly amended claims 10 and 11, because the alleged combination of Wald, Mowrer and Ito fails to teach each and every feature of newly amended independent claims 10 and 11. For example, newly amended independent claims 10 and 11 recite, amongst other features, that “the membrane-electrode structure includes a diffusion layer that coats at least one of said catalyst layers and said adhesive support layer.” The Applicants respectfully submit that the alleged combination of Wald, Mowrer and Ito fails to teach or suggest at least the diffusion layer as claimed in newly amended independent claims 10 and 11.

Wald, as cited by the Examiner, does disclose a membrane electrode assembly with compression control gasket (abstract) containing a fuel transport layers 2 and 3 that are positioned near a polymer electrolyte membrane 1, as shown in FIGs. 1 and 2. The Examiner relies on Wald to teach “two catalyst layers, wherein the catalyst layers are positioned in the inner circumference side of the membrane (Figure 2; column 5 lines 53-67)” (Office Action, page 2). Although Wald does not show a catalyst material in any of the figures, catalyst layers are discussed in column 5. Further, Wald discloses a gasket material 10 that may be made of various “thermoplastic and curable materials” (column 6, lines 39-41) that is placed at the edges of the assembly, as shown in FIGs. 1 and 2.

However, FIGs. 1 and 2 of Wald clearly show that neither the anode side fuel transport layer 2 nor the cathode side fuel transport layer 3 coat the gasket

material 10. In fact, as Wald explains in column 6, lines 10-12, the gasket material is “deposited in the outer edge portions of the anode and cathode faces of the PEM” after both layers 2 and 3 are formed. Then, it would be impossible for either layer 2 or 3 to “coat” the gasket material 10, as claimed in newly amended independent claims 10 and 11. Rather, the gasket material 10 is deposited in the step shown in FIG. 1 and then the assembly is “pressed” according to the discussion in column 6 lines 52-64. As shown in FIGs. 1 and 2, the gasket material 10 contacts each of these layers only at its periphery or the “outer edge portions” (column 6, lines 10-12). In other words, the layers 2 and 3 do not coat the gasket material 10, but merely make slight contact with it. Wald simply does not teach, disclose or otherwise suggest a “diffusion layer that coats at least one of said catalyst layers and said adhesive support layer,” as claimed.

Nor does Mowrer cure the deficiencies of Wald at least with respect to the diffusion layer. The Examiner relies upon Mowrer to teach a polysiloxane adhesive (Office Action, page 3), but does not rely on Mowrer to teach a membrane electrode structure, diffusion or catalyst layers. In fact, Mower does not mention the words “membrane” or “electrode” or the phrase “diffusion layer” in the specification.

Nor does Ito cure the deficiencies of the combination of Wald and Mowrer at least with respect to the diffusion layer. The Examiner relies upon Ito to teach “a solid polymer electrolyte fuel cells for use in automobiles,” but does not rely on Ito to teach a membrane electrode structure, diffusion or catalyst layers. No figures in Ito show a diffusion layer structure or an adhesive, much less a

diffusion layer coating an adhesive, as claimed. In fact, Ito does not mention the phrase “diffusion layer” in the specification.

For at least the above reasons, Applicants respectfully submit that the alleged combination of Wald, Mowrer and Ito does not render newly amended independent claims 10 and 11 obvious. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 10 and 11 under 35 U.S.C. §103(a) over Wald in view of Mowrer and Ito.

CONCLUSION

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account Number 01-2300, referencing Docket Number 101175-00054.

Respectfully submitted,



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